

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
30 September 2004 (30.09.2004)

PCT

(10) International Publication Number
WO 2004/084501 A3

(51) International Patent Classification⁷: **H04L 12/56**

(74) Agent: **COCKAYNE, Gillian**; Marconi Intellectual Property, Crompton Close, Basildon, Essex SS14 3BA (GB).

(21) International Application Number:

PCT/GB2004/001064

(22) International Filing Date: 12 March 2004 (12.03.2004)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:

0306536.4 21 March 2003 (21.03.2003) GB

(71) Applicant (for all designated States except US): **MARCONI UK INTELLECTUAL PROPERTY LIMITED** [GB/GB]; P.O. Box 53, New Century Park, Coventry CV3 1HJ (GB).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **CAMPBELL, William** [GB/GB]; 4 Sanbel Gardens, Cronton, Widnes WA8 5GY (GB). **BOOKER, Paul** [GB/GB]; Bank House, Bunbury Lane, Bunbury, Tarporley, Cheshire CW6 9QS (GB). **SMITH, Russell** [GB/GB]; 51 Mere Avenue, Raby Mere, Wirral CH63 0NE (GB).

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

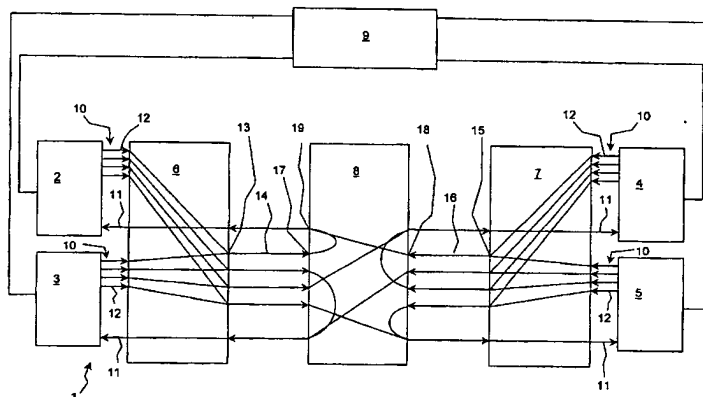
(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

— with international search report

[Continued on next page]

(54) Title: PATHS IN TELECOMMUNICATIONS NETWORKS



(57) Abstract: A telecommunications network (1) is provided, comprising a plurality of network elements (2, 3, 4, 5), switching means (6, 7, 8), and a traffic stream controller (9), wherein, for each network element, there is provided a set of outgoing paths (10) from the network element to the switching means, one outgoing path carrying traffic streams for each of the network elements, and an incoming path (11) carrying traffic streams from the switching means to the network element, the switching means merges each outgoing path carrying traffic streams for the network element onto the incoming path of the network element, to route traffic streams from each of the network elements to the network element, and routing of the traffic streams to the network element is controlled by the network element using the traffic stream controller. The telecommunications network thus comprises a merged mesh of paths, which fully interconnects all of the network elements. Each outgoing path and incoming path may comprise a permanent virtual path (PVP). For each network element, control of routing of the traffic streams to the network element may comprise control of usage of the incoming path bandwidth of the network element.

WO 2004/084501 A3



— *before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments*

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(88) Date of publication of the international search report:
20 January 2005

INTERNATIONAL SEARCH REPORT

International Application No
PCT/GB2004/001064

A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 H04L12/56

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 H04L

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, PAJ

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2002/085545 A1 (CHATTOPADHYA SANDIP ET AL) 4 July 2002 (2002-07-04)	1, 20-23
Y	paragraphs '0061! - '0063!, '0073!, '0081!, '0125! figures 5, 6, 11	2-7, 14-19
Y	KOZAKI T ET AL: "PVC reservation on shared buffer type ATM switch for data communication" COMMUNICATIONS, 1994. ICC '94, SUPERCOMM/ICC '94, CONFERENCE RECORD, 'SERVING HUMANITY THROUGH COMMUNICATIONS.' IEEE INTERNATIONAL CONFERENCE ON NEW ORLEANS, LA, USA 1-5 MAY 1994, NEW YORK, NY, USA, IEEE, 1 May 1994 (1994-05-01), pages 391-396, XP010126773 ISBN: 0-7803-1825-0 the whole document	2, 3, 14-19
	----- -/-	

☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

* Special categories of cited documents:

- "A" document defining the general state of the art which is not considered to be of particular relevance
- "E" earlier document but published on or after the international filing date
- "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- "O" document referring to an oral disclosure, use, exhibition or other means
- "P" document published prior to the international filing date but later than the priority date claimed

- "T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- "&" document member of the same patent family

Date of the actual completion of the international search

11 November 2004

Date of mailing of the international search report

22/11/2004

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,
Fax: (+31-70) 340-3016

Authorized officer

Perez Perez, J

INTERNATIONAL SEARCH REPORT

Inte nal Application No
PCT/GB2004/001064

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 5 748 629 A (COLSMAN MATTHIAS L ET AL) 5 May 1998 (1998-05-05) column 10, line 1 - line 61 figure 1	4-7
X	----- WO 86/02511 A (HUGHES AIRCRAFT CO) 24 April 1986 (1986-04-24) page 9, line 23 - line 35 figure 1	1,23
A	----- GB 2 331 659 A (ERICSSON TELEFON AB L M) 26 May 1999 (1999-05-26) page 19, line 24 - page 21, line 1 -----	1

INTERNATIONAL SEARCH REPORT

information on patent family members

International Application No

PCT/GB2004/001064

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 2002085545	A1	04-07-2002	
		WO 02056526 A2	18-07-2002
		WO 02054688 A1	11-07-2002
		WO 02056525 A2	18-07-2002
		WO 02054649 A2	11-07-2002
		WO 02067506 A1	29-08-2002
		WO 02054183 A2	11-07-2002
		US 2002085567 A1	04-07-2002
		US 2002085548 A1	04-07-2002
		US 2002085553 A1	04-07-2002
		US 2002085565 A1	04-07-2002
		US 2002085507 A1	04-07-2002
US 5748629	A	05-05-1998	
		AU 6500796 A	18-02-1997
		AU 6500896 A	18-02-1997
		AU 6500996 A	18-02-1997
		AU 6501096 A	18-02-1997
		AU 6501496 A	18-02-1997
		AU 6501696 A	18-02-1997
		AU 6501796 A	18-02-1997
		AU 6501996 A	18-02-1997
		AU 6502096 A	18-02-1997
		AU 6502496 A	18-02-1997
		AU 6502596 A	18-02-1997
		AU 6502696 A	18-02-1997
		AU 6502796 A	18-02-1997
		AU 6503196 A	18-02-1997
		AU 6503296 A	18-02-1997
		AU 6503396 A	18-02-1997
		AU 6503496 A	18-02-1997
		AU 6503596 A	18-02-1997
		AU 6503696 A	18-02-1997
		AU 6503796 A	18-02-1997
		AU 6549196 A	18-02-1997
		AU 6549296 A	18-02-1997
		AU 6648496 A	18-02-1997
		AU 6648796 A	18-02-1997
		AU 6712496 A	18-02-1997
		AU 6712596 A	18-02-1997
		AU 6761896 A	18-02-1997
		AU 6762096 A	18-02-1997
		DE 69631589 D1	25-03-2004
		DE 69631589 T2	16-09-2004
		EP 0845181 A1	03-06-1998
		EP 0839420 A1	06-05-1998
		EP 0839419 A2	06-05-1998
		EP 0872086 A1	21-10-1998
		EP 0839421 A2	06-05-1998
		EP 0839422 A1	06-05-1998
		JP 11510323 T	07-09-1999
		JP 2000501897 T	15-02-2000
		JP 11510324 T	07-09-1999
		JP 2000501900 T	15-02-2000
		JP 2000501901 T	15-02-2000
		JP 2002516038 T	28-05-2002
		JP 2001519973 T	23-10-2001
		JP 11510003 T	31-08-1999
		JP 2000501902 T	15-02-2000
		JP 11510004 T	31-08-1999

INTERNATIONAL SEARCH REPORT

information on patent family members

Inter: il Application No
PCT/GB2004/001064

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 5748629 A		JP 11510005 T JP 11510006 T JP 11511303 T	31-08-1999 31-08-1999 28-09-1999
WO 8602511 A	24-04-1986	US 4621359 A DE 3574659 D1 EP 0197103 A1 IL 76533 A JP 62500627 T KR 9006792 B1 WO 8602511 A1	04-11-1986 11-01-1990 15-10-1986 31-08-1990 12-03-1987 21-09-1990 24-04-1986
GB 2331659 A	26-05-1999	AU 1962299 A CA 2311334 A1 WO 9927686 A1 US 6661806 B1	15-06-1999 03-06-1999 03-06-1999 09-12-2003